

UNITED STATES DISTRICT COURT
DISTRICT OF MAINE

**GOLF TECH, LLC AND
SPORTS VISION, LLC,**

PLAINTIFFS

v.

**EDENS TECHNOLOGIES, LLC,
DBA DANCINGDOGG GOLF,**

DEFENDANT

CIVIL No. 07-194-P-H

MEMORANDUM DECISION ON CLAIMS CONSTRUCTION

Golf Tech, LLC and Sports Vision, LLC allege that Edens Technologies, LLC is infringing their U.S. Patent No. 6,821,211 (“the ’211 patent”) by selling its Shot Making Simulator for analyzing a golfer’s club swing. After the parties filed a series of briefs on claim construction, I held a Markman hearing on August 1, 2008. I now construe the ’211 patent claims in dispute. Underlying my construction of the asserted claims is the following conclusion: the patented invention is not the analysis of a golf swing, but the addition of a reflective strip to the golf club head, an addition that permits new and additional analyses.

BACKGROUND

Golf Tech, LLC holds the ’211 patent for a device used in analyzing a golfer’s swing.¹ The patent describes a device consisting of a strip of reflective

¹ Sports Vision, LLC, the other plaintiff, holds an exclusive license to make and sell products
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tape attached to the head of a golf club; a base unit that includes a golf tee and multiple sensor arrays; and a connection from the base unit to a computer. The sensor arrays, activated by the reflective tape on the club head, can detect the club head as it is swung, and generate data from the swing; the connected computer then can calculate relevant metrics, such as club head speed, height, and angle.

Golf Tech patented 55 claims in the '211 patent. Claims 1 through 28 all depend on claim 1; claims 29 and 30 hinge on claim 29; claims 31 to 42 all hinge on claim 31; and claims 43 through 55 all depend on claim 43.² In this lawsuit, Golf Tech claims that Edens Technologies, LLC's ("Edens") Shot Making Simulator infringes claims 29, 31, 38, 39 and 43. See Plaintiffs' Opening Claim Construction Brief, at 1 (Docket Item 35) ("Pls.' Br."). Those are the claims I construe pursuant to Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996).

CLAIMS CONSTRUCTION

(1) Summary of Disputed Claims Terms

The asserted claims are:

29. A method of analyzing a golf swing, comprising:
 - applying a reflective material to the head of a club to form a non-uniformly-reflective surface characterized by leading and trailing edges; and
 - sensing the leading and trailing edges of the reflective material as it passes over each of a plurality of sensors;

covered by the '211 patent. For convenience, I refer to the plaintiffs, collectively, as "Golf Tech."

² Claims 1 through 28 and 43 through 55 are "system" claims; claims 29 through 42 are "method" claims. The distinction seems to make no difference in this claim construction controversy.

analyzing data generated by each of the multiple sensor[s] over which the reflective material has passed.

31. A golf swing analysis method for use with a golf club having a strip of reflective material that forms a non-uniformly-reflective surface characterized by leading and trailing edges, comprising the steps of:

- (A) emitting a light toward a location in a path of the swung golf club;
- (B) receiving light reflected from the reflective material; and
- (C) generating at least one signal for each transition in light level reflected from the reflective material corresponding to a leading or trailing edge of the reflective material.

38. The method of claim 31 further comprising the step of:

- (L) computing a club swing path angle.

39. The method of claim 31 further comprising the step of:

- (M) computing a club head angle.³

43. A golf swing analysis system for use with a golf club to be swung, comprising:

- a non-uniformly-reflective surface characterized by leading and trailing edges coupled to the golf club head;
- a light source configured to emit light toward a location in a path of the swung golf club;
- a light receiver configured to receive light reflected from the non-uniformly-reflective surface; and
- a processor configured to generate at least one signal for each transition in light level reflected from the reflective material attached to the club.

Although the parties' written pleadings initially included a proposed construction of up to nine terms, at the Markman hearing, counsel for each party narrowed the terms actually in dispute to three.⁴ See Vivid Techs, Inc. v. American Sci. & Eng'g, Inc., 200 F.3d 795, 803 (Fed. Cir. 1999) ("only those

³ Because claims 38 and 39 depend on claim 31, I will not refer to them separately.

⁴ The parties agree to construction of: "leading and trailing edges" in all claims; "sensing the leading and trailing edges of the reflective material" in claim 29; and "signal" in claims 31 and 43.

terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy”). They are:

(A) Whether the term “non-uniformly-reflective surface” in claims 29, 31, and 43, is limited to a reflective tape attached to a non-reflective surface; whether it encompasses any non-uniformly reflective surface; or something in between;

(B) Whether analysis of a golf swing is part of the patented invention (referring to the phrase “method of analyzing a golf swing” in the preamble of claim 29 and the phrase “golf swing analysis” in the preambles of claims 31 and 43), thereby acting as a claim limitation; and

(C) If so, whether the term “analyzing” or “analysis” requires using the “first derivative of the sensor outputs.”

(2) Construction of Disputed Claims Terms

(A) “Non-Uniformly-Reflective Surface” (Claims 29, 31, & 43)

The term “non-uniformly-reflective surface” is used throughout the claims of the '211 patent. Edens believes that this term requires a “non-reflective surface (such a[s] the bottom of a golf club head) to which a reflective material is attached.” Def.’s Opening Claim Construction Brief, at 13 (Docket Item 33) (“Def.’s Br.”). Golf Tech, on the other hand, argues that the term should be construed simply as “a surface presenting varying degrees of reflectivity, including one portion which is more highly reflective.” Pls.’ Br. at 8. I conclude that both parties are wrong.

Claim construction begins with the language of the claims. I start with the ordinary meaning as understood by a person having ordinary skill in the

art and read in light of the specification. See Phillips v. AWH Corp., 415 F.3d 1303, 1312–15 (Fed. Cir. 2005) (en banc). Edens’ construction is overly narrow: nothing in the language of the claims, the specification, or prosecution history, requires that the reflective material be attached to a *non-reflective* surface. The plain meaning of non-uniform reflectivity encompasses any surface that has differing levels of reflectivity. But the term “non-uniform reflectivity,” as used in claims 29, 31, and 43, is not so broad as to encompass Golf Tech’s construction, because those claims are specifically limited by additional language that requires a strip of *reflective* tape as part of the non-uniformly reflective surface.⁵

I conclude that the golf club can be reflective; that reflective tape must be used; and that there must be non-uniformity between the reflectivity of the tape and the club head.

(B) Is “Analysis” a Limitation on Claims 29, 31, & 43?

Edens argues that the phrases “method of analyzing a golf swing” (claim 29 preamble)⁶ and “golf swing analysis” (claims 31 and 43 preambles) limit those claims to devices that actually analyze signals generated by both the leading and trailing edge of the reflective tape.⁷ (Apparently, Edens’ Shot

⁵ At oral argument, Golf Tech agreed that all the claims in dispute required that the affixed tape be reflective, and receded from its earlier argument that the asserted claims covered non-reflective tape applied to a reflective golf club surface.

⁶ The parties did not argue whether the final clause of claim 29 (“analyzing data generated by each of the multiple sensor[s] over which the reflective material has passed”) should be interpreted to require analysis of both the leading and trailing edges. Therefore, I do not address the form of analysis required by that clause. (The only reference to the effect of the final clause of claim 29 in this context was by Edens in a cursory response to one of my questions during the Markman hearing.)

⁷ Specifically, Edens proposes limiting the second clause of the body of claim 29 (“sensing the leading and trailing edges of the reflective material as it passes over each of a plurality of sensors”) by the preamble’s phrase “[a] method of analyzing a golf swing”; and a similar
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Making Simulator does not analyze the signal from the trailing edge.) Edens supports its construction by reliance on the prosecution history and its opinion that “the invention is not ‘complete’ unless the data generated from both leading and trailing edges [are] analyzed to determine an aspect of a golf swing.” Def.’s Br. at 9.

A patent claim frequently consists of three components: the preamble, the transition (e.g., “comprising”), and the body. 3 Donald S. Chisum, Chisum on Patents § 8.06[1][b] (2007). “Whether to treat a preamble as a limitation is a determination ‘resolved only on review of the entire[] . . . patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim.’” Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting Corning Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251, 1257 (Fed. Cir. 1989)). “[A] preamble limits the invention if it recites essential structure or steps, or if it is ‘necessary to give life, meaning, and vitality’ to the claim.” Id. (quoting Pitney Bowes, Inc. v. Hewlett-Packard, Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999)). The preamble may also limit the claim when the inventor relied upon it during the “prosecution to distinguish the claimed invention from the prior art.” Id. Language in a preamble does not act as a claim limitation when the body of the claim describes a “structurally complete invention” and “the preamble merely states a purpose or intended use of the invention.” See Symantec Corp. v. Computer Assocs. Int’l, Inc., 522 F.3d 1279, 1288 (Fed. Cir. 2008); Catalina

limitation of clause (c) in claim 31 and the final clause of claim 43 by the phrase “golf swing analysis” in the preamble of those claims.

Mktg., 289 F.3d at 808 (quoting Rowe v. Dror, 112 F.3d 473, 478 (Fed. Cir. 1997)).

Claims 29, 31, and 43 each describes a “structurally complete invention” without limitations from the preambles. Edens argues that unless golf swing analysis is a limitation, those claims merely describe an invention to generate signals, divorced from the context of golf swing analysis. See Def.’s Brief in Opp’n to Pls.’ Br, at 5 (Docket Item 37) (“[t]he generation of signals, by itself, cannot constitute an invention”). Edens is wrong: generating the discriminating signals by using the reflective tape is the invention, not the analysis of the data that follows. The claims cover a specific method and system of sensing a swung golf club, which in turn generates signals in a form that *can* be analyzed.⁸

The goal of the ’211 patent is to provide greater accuracy by assessing “a large number of swing or club head parameters.” The ’211 Patent, Background of the Invention, at 2. As the specification shows, the core of the invention is the method of using a strip of reflective tape to enhance the sensors’ ability to detect aspects of the club head as it is swung. Id., Specification, at 3–4. This is precisely the feature identified by the patent examiner that distinguishes the ’211 patent from prior art. The patent examiner required Golf Tech to distinguish the ’211 patent from two existing patents for systems already used in golf swing analysis. Golf Tech did not rely on the preambles of the ’211 patent’s claims to distinguish the ’211 patent from prior art. Instead, Golf Tech

⁸ Edens’ proposed construction also ignores the effect of claims 38 and 39—dependent claims of claim 31—that add limitations that require specific analysis: “computing a club swing path angle” and “computing a club head angle.” See infra n.12.

focused on the non-uniformity of its club head surface, specifically the sharp transitions in reflected light caused by the leading and trailing edges of the attached reflective tape, to contrast the '211 patent from the substantially uniform reflective surface of the "Bouton" patent and the discrimination circuit of the "Blankenship" patent. See Amendment to the '211 Patent (filed Sept. 14, 2001), attached as Ex. A to Decl. of Scott Houtteman (Docket Item 34). After first disallowing Golf Tech's patent claims, the patent examiner finally concluded that the distinguishing feature of the '211 patent was its specific method for sensing the golf club head—the addition of reflective tape—not the analysis of the data generated from that method. In finally allowing the patent, he stated: "The following is an examiner's statement of reasons for allowance: The ['211] golf swing analysis system works by *sensing a reflective material that forms a non-uniformly-reflective surface characterized by leading and trailing edges.*" See United States Patent and Trademark Office, Notice of Allowance and Fee(s) Due, Patent Examiner's Amendment, attached as Ex. C to Decl. of Scott Houtteman (emphasis added).

Edens further argues that the preamble is necessary to limit claims 29, 31, and 43 to the context of golf swing analysis, because otherwise the claims would be intolerably broad. However, the body of each of those claims provides such a limitation without resorting to the preamble. The body of claim 29 limits its scope to a reflective material attached to "the head of a club," the body of claim 31 expressly limits that claim to a "swung golf club," and the body of claim 43 limits the claim to a "golf club head" and a "swung golf club."

The preambles of claims 29, 31, and 43 are not essential steps in any of those claims; they merely give context to those claims by describing the principal use that the inventor envisioned.⁹

(C) The Meaning of “Analysis”

Edens agrees that if my claim construction concludes that golf swing analysis is not part of the claims, I need not reach the issue of what analysis amounts to under the '211 patent. Nevertheless, the parties have briefed and argued what analysis means, and the body of claim 29 requires “analyzing data generated,” I therefore decide the issue.

Edens argues that analysis must mean using the first derivative of an analog signal generated by the sensors. It reaches that conclusion from language in the specification and the affidavit of its expert that no other analysis is possible. Golf Tech maintains that the claim language allows for any type of analysis.

The ordinary meaning of claim language is the language that would be understood by someone skilled in the art. Phillips, 415 F.3d at 1312–13. But Edens jumps too far and too fast from the ordinary meaning of “analyze” to a context-specific meaning ascribed by its expert—a professor of electrical

⁹ “[T]he inventor of a machine is entitled to the benefit of all the uses to which it can be put, no matter whether he had conceived the idea of the use or not.” See Catalina Mktg., 289 F.3d at 809 (internal quotation marks omitted); see also Phillips, 415 F.3d at 1327 (quoting Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 908 (Fed. Cir. 2004)) (“[t]he fact that a patent asserts that an invention achieves several objectives does not require that each of the claims be construed as limited to structures that are capable of achieving all of the objectives”).

Edens also argues that claims 31 and 43 should be limited by the preamble phrase “golf swing analysis” according to the maxim that claims should be construed to avoid invalidity. Def.’s Br. at 11 (citing Lewmar Marine, Inc. v. Barient, Inc., 827 F.2d 744, 749 (Fed. Cir. 1987)). In Phillips, the Federal Circuit limited this maxim to situations where a claim’s ambiguity could not be resolved after “all the available tools” of claim construction had been applied. 415 F.3d at 1327 (internal quotation marks omitted). Thus, the maxim does not apply here.

engineering—that would limit the term. See id. at 1314 (“In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.”). There is no reason to go beyond intrinsic evidence.¹⁰ Golf Tech did not claim analysis as part of claims 31 and 43. Claim 29 includes “analyzing data generated by each of the multiple sensor[s] over which the reflective material has passed,” but nothing in that claim limits “analyzing” to taking the first derivative; the specification mentions using the first derivative of sensor outputs to “better distinguish the passage of the reflective tape from artifact,” The ’211 Patent, Specification, at 6–7, but does not necessarily require using the first derivative for the invention to function. Moreover, claim 30, a claim dependent on claim 29, specifically claims analysis in the form of using the first derivative: “A method according to claim 29, wherein sensing the leading and trailing edges of the reflective material as it passes over multiple sensors includes generating data as a function of the first derivative of outputs from the multiple sensors.” Claim 30’s articulation of a

¹⁰ The starting point of claims construction is the intrinsic evidence (the claims, the specification, and the prosecution history). See Phillips, 415 F.3d at 1316–17. Extrinsic evidence (e.g., expert testimony, dictionary, treatises) may be consulted, but it is “less significant than the intrinsic record in determining the legally operative meaning of claim language.” Id. at 1317 (internal quotation marks omitted). Even when a court turns to extrinsic evidence, expert testimony on the proper construction of a claim “may only be relied upon if the patent documents, taken as a whole, are insufficient to enable the court to construe disputed claim terms. Such instances will rarely, if ever, occur. . . . Indeed, opinion testimony on claim construction should be treated with the utmost caution, for it is no better than opinion testimony on the meaning of statutory terms.” Vitronics Co. v. Conceptronic, Inc., 90 F.3d 1576, 1585 (Fed. Cir. 1996). Extrinsic evidence, particularly expert testimony, is primarily to assist the court in understanding the patent, “not for the purpose of varying or contradicting the terms of the claims.” Markman v. Westview Instruments, Inc., 52 F.3d 967, 981 (Fed. Cir. 1995), affirmed 517 U.S. 370 (1996); see also Vitronics, 90 F.3d at 1585.

specific limitation on the type of analysis counsels against interpreting “analysis” in claim 29 as already containing that limitation.¹¹

What Golf Tech invented was a new means of generating useful data; and it is not limited by what analysis is capable of now or might be expanded to in the future.

CONCLUSION

The essential invention here was the addition of a strip of reflective tape to the golf club head, however insignificant that sounds. That addition is what separated this invention from prior art. That recognition answers the claims construction issues in dispute.

SO ORDERED.

DATED THIS 15TH DAY OF AUGUST, 2008

/s/D. BROCK HORNBY

D. BROCK HORNBY

UNITED STATES DISTRICT JUDGE

¹¹ This principle of claim differentiation is particularly compelling when distinguishing an independent claim from one of its dependent claims. See Phillips, 415 F.3d at 1324–25 (stating that “[t]he inclusion of such a specific limitation on the term ‘baffles’ in [dependent] claim 2 makes it likely that the patentee did not contemplate that the term ‘baffles’ already contained that limitation”); Turbocare Div. of Demag Delaval Turbomachinery Corp. v. Gen. Elec. Co., 264 F.3d 1111, 1123 (Fed. Cir. 2001) (a claim should not be construed to contain a limitation “where another claim restricts the invention in exactly [that] manner”); Dow Chem. Co. v. United States, 226 F.3d 1334, 1341–42 (Fed. Cir. 2000) (an independent claim should generally be construed so as not to render a dependent claim redundant).